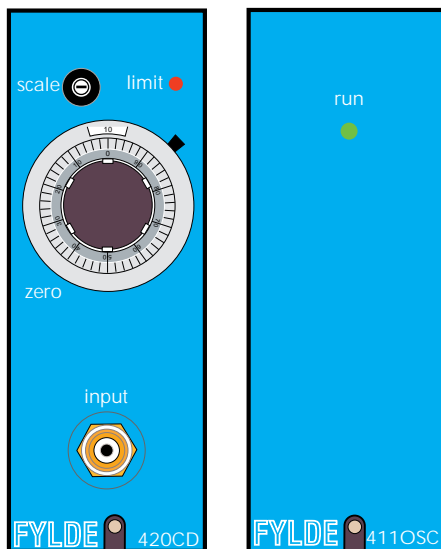


# FYLDE

## MODULAR

### INSTRUMENTATION

## FE-420 CD, 411-OSC capacitive displacement amplifier and oscillator



The measurement of displacement using capacitive displacement transducers is an established principle based on the variation of capacity between a transducer probe and an electrically conductive and grounded surface.

The principle of measurement demands the application of a highly stable high frequency oscillator, together with a special high impedance amplifier which detects the spacing between the probe and the movable target area.

In the FYLDE system a stable oscillator of precise sinewave form energises the probe via a low noise screened cable. Amplification of the resulting signal is developed in the amplifier module which comprises:-

- a. a high impedance input stage
- b. a precision rectifier
- c. 3 pole active filter
- d. back-off facility
- e. a variable gain output stage

- \* MODULAR ASSEMBLY COMPRISING :-
- \* COMMON OSCILLATOR
- \* UP TO 8 AMPLIFIER CHANNELS
- \* MINIATURE 2U COMPACT SYSTEM
- \* MAINS OR DC POWER
- \*  $\pm 10V$  OUTPUTS
- \* WIDE BAND STABLE MEASUREMENTS
- \* DESIGNED AND PRODUCED IN THE UK

Linearity in the measurement depends on the transducer design and the distance to be measured, but amplifier performance involving bandwidth, linearity and stability are important factors in maintaining a measurement standard.

The integral mains power supply provides isolation of signal earths. The isolation may be maintained when operating from a d.c. battery supply, using a Fylde FE-605-DCC. converter in place of the mains transformer.

Output voltage from the amplifier is in the range 0 to 10 volts. The output is linearly proportional to distance between the probe and the grounded surface to be measured. Scaling of probe outputs is a straight forward adjustment and may be preset to suit the capacity range of a given probe.

Presentation of the equipment is in modular form with plug in oscillator and matching amplifier modules.

Inputs are to the front panels via Microdot coaxial connectors. Outputs on the rear panels of assemblies. Direct digital display is also a standard facility if required for multi-channel systems.

Modules in the system are compatible with other standard modules in the Fylde miniature signal conditioning system. Modules are supplied as either mains powered or DC powered versions depending upon the user's choice of system power supply.

SPECIFICATION :

OSCILLATOR	FE-421-OSC	Frequency	16 kHz or 32 kHz.
		Level	O/p is 40 mV, 80 mV, 0.2, 0.4, 0.8, 2 and 4 V RMS, on front panel switch generating 2,4,10,20,40,100 and 200 mV RMS at FE-420-CD oscillator input.
	FE-411-OSC	Frequency	16 kHz
		Level	O/p is 0.1, 0.2, 0.5, 1, 2, and 5 V RMS via internal DIP switch generating 5,10,25,50,100 and 250 mV RMS at FE-420-CD oscillator input.
	(Both types)	Power	sufficient to power up to eight channels.
		Distortion	<0.5% harmonic distortion.
		Amplitude Stability	<100 ppm/°C.
AMPLIFIER	FE-420-CD	Range	0.03 pF to 3 pF typical.
		Rectifier	full wave precision.
		Filter type	3 pole Butterworth.
		Cut off frequency.	configurable by plug in network as required in the range 1 kHz to 14 kHz.
			Note: Frequencies above 8 kHz require 32 kHz oscillator.
		Rise time	300 μs (1 kHz cut off frequency.) 30 μs(14 kHz cut off frequency.)
		Output	maximum ±10 volts at 2 mA.
		Back-off	0 to 5 V using front panel dial.
		Scale	Front panel control provides a gain increase of x2.5. Calibrated when anti-clockwise when 1 V D.C. o/p =1 V A.C. @ pre-amp.
		C osc	normally 4p7
		Gain Stability	<0.1%/°C.
		Input Connector	micro-dot.
		Cable length	2 metres recommended.
POWER REQUIREMENT			mains 240 V 50 Hz / 110 V 60 Hz or 12 V DC when using FE-605-DCC